REMARKS

In the Office Action, the Examiner rejected claims 1-30. By this Response, Applicants amend claims 1, 23, 27, 29, and 30 to further clarify the claimed subject matter and add new claims 92-140. Upon entry of these amendments, claims 1-30 and 92-140 will remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Objections

In the Office Action, the Examiner objected to the numbering of the claims. Particularly, the Examiner noted that two claims were numbered as claim 21. To ameliorate this error, the Examiner renumbered claims 21 (second occurrence)-29 as claims 22-30. Applicants thank the Examiner for pointing out this clerical error and notes that the listing of claims provided herewith incorporates this renumbering. Accordingly, claims 23, 27, 29, and 30 have been amended to correct the dependencies of these claims in light of the renumbering. Applicants respectfully request withdrawal the objection to the claims.

Claim Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-14 and 16-27 under U.S.C. § 102(b) as anticipated by Lampotang et al. (U.S. Patent No. 6,597,939). The Examiner also rejected claims 1, 2, 4, 6-8, 11-14, 16-19, 21-23, 25, and 28-30 under U.S.C. § 102(b) as anticipated by Watrous (U.S. Patent No. 5,967,981). Applicants respectfully traverse these rejections.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q.

773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

Omitted Features of Independent Claim 1

Turning now to the claims, the Watrous and Lampotang et al. references fail to disclose each and every element of independent claim 1. For instance, independent claim 1 recites "sensing physiological activity *via a sensor configured to directly detect physical motion* of internal tissue of a subject" (emphasis added). Neither the Watrous reference nor the Lampotang et al. reference discloses such an element. In view of these deficiencies, the cited references, taken alone or in combination, cannot anticipate independent claim 1.

The Watrous Reference

First addressing the rejection based on the Watrous reference, the Watrous reference fails to disclose "a sensor configured to *directly detect physical motion*" (emphasis added). As a preliminary matter, Applicants note that, as used herein and supported by the specification, the term "directly" refers to the sensing of some parameter related to displacement. In other words, "directly detect physical motion" indicates that the sensor is configured to detect a parameter related to physical motion or displacement without the need to infer such motion through indirect data, such as ECG data. The term "directly" is not used by Applicants to suggest that the sensor must be in physical contact with a subject. As discussed in the specification, embodiments of the present techniques may use sensors that are in contact with a subject, but may also use sensors that are remote from a subject.

The Watrous reference is directed to an apparatus for triggering an imaging device. Col. 1, lines 35-36. Notably, the Watrous apparatus includes an ECG sensor 10 that obtains actual ECG data from a patient. Col. 1, lines 50-52. The data obtained by ECG sensor 10 is then input into an artificial neural network 20 capable of generating predicted data. Col. 1, lines 50-55. Further, an event detector 30 receives the predicted data and triggers the imaging apparatus 40. Col. 1, lines 56-61.

Applicants respectfully note that ECG sensor 10 is not "a sensor configured to directly detect *physical* motion" (emphasis added). As would be appreciated by one skilled in the art, an ECG detects *electrical* activity of the heart. Although this electrical activity may be indirectly related in some fashion with the actual physical motion of a heart, an ECG sensor is not configured to detect this motion. At best, such a sensor indirectly detects physical motion by detecting an *electrical* impulse that *causes* cardiac movement. As it merely detects an electrical impulse, the ECG sensor 10 of the Watrous reference cannot be reasonably equated with "a sensor configured to directly detect *physical motion* of internal tissue of a subject" (emphasis added). Because the Watrous reference fails to disclose this element, the cited reference cannot anticipate independent claim 1.

The Lampotang et al. Reference

Similarly, the Lampotang et al. reference also fails to disclose "a sensor *configured to directly detect physical motion* of internal tissue of a subject" (emphasis added). The Lampotang et al. reference is directed to a method and apparatus for coordinating a medical treatment or diagnostic breath procedure with respect to one or more physiological cycles of a patient. Col 2, lines 36-39. The Lampotang et al. apparatus includes a ventilator 1 and an X-ray machine 7. Col. 4, lines 52-62. The cited reference teaches use of a flowmeter 20 to detect the degree insuflation of a subject. Col. lines 18-23; FIG. 2A. The Lampotang et al. reference also discloses use of a pressure sensor to aid in inferring peak lung inflation. *See* Col. 6, lines 46-50. These flow and

pressure sensors are configured to detect the flow of gas to and from a subject and the airway pressure of the subject, respectively. Col. 6, lines 46-57. These sensors, however, are not configured to directly detect physical motion of internal tissue. As in the Watrous reference above, these sensors, at best, merely allow an operator to *infer* that some physical motion has occurred. Making such an inference is not *directly detecting* such motion and, therefore, the flow and pressure sensors disclosed by Lampotang et al. are not sensors "configured to *directly detect physical motion* of internal tissue" (emphasis added). Consequently, the Lampotang et al. reference fails to anticipate the presently claimed subject matter of independent claim 1.

For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 102 and allowance of these claims.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected claims 15 and 28-30 under 35 U.S.C. § 103(a) as obvious over Lampotang et al. (U.S. Patent No. 6,597,939); claims 15 and 28-30 under 35 U.S.C. § 103(a) as obvious over Watrous (U.S. Patent No. 5,967,981); and claims 3, 5, 9, 10, 20, 23, 24, 26, and 27 under 35 U.S.C. § 103(a) as obvious over Watrous in view of Lampotang et al. Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a

convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Deficiencies of the Rejections

Applicants respectfully note that each of the claims rejected under 35 U.S.C. § 103(a) depends from independent claim 1. As discussed above, the Lampotang et al. and Watrous references, whether considered individually or in combination, fail to disclose every element of independent claim 1. As a result, these dependent claims are allowable on the basis of their dependency from an allowable independent claim, as well as by virtue of the subject matter separately recited by each dependent claim. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection and allowance of claims 3, 5, 9, 10, 15, 20, 23, 24, and 26-30.

New Claims

New claims 92-140 have been added by this Response. These new claims add no new matter and are fully supported throughout the specification. Notably, independent claim 92 recites a method of triggering an imaging system comprising "sensing cardiovascular activity *via a sensor configured to detect physical motion* of cardiovascular tissue of a subject" (emphasis added). Additionally, independent claim 113 recites a method of triggering an imaging system comprising "detecting a *surface motion* of a subject" (emphasis added). For reasons including those provided above with respect to independent claim 1, claims 92-140 are patentable over the cited references and are believed to be in condition for allowance. Furthermore, in view of the earlier cancellation of claims 31-91, which included four independent claims, no fees are believed due for the addition of claims 92-140 in this Response.

Conclusion

Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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Patrick S. Yoder
Reg. No. 37,479
FLETCHER YODER
P.O. Box 692289
Houston, TX 77269-2289
(281) 970-4545